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# Supporting the development of biodiversity-based agricultures: understanding and strengthening local networks for agroecological knowledge circulation, insights from the global South

Vanesse Labeyrie\*<sup>1</sup>, Christophe Le Page , Jacques Baudry , and Martine Antona

<sup>1</sup>CIRAD – CIRAD – France

## Abstract

Most countries in the global South are engaged in an agricultural transition driven by integration into the market economy and strongly supported by development programs. This transition leads to the homogenization of cropping systems and the specialization of production and agrarian systems, which leads to the reduction of plant diversity from the scale of the plot to that of the landscape, from the farm to the region. This loss of diversity at different scales alters ecosystems functioning and affects the different services they provide to humans. Rural population in these areas, however, mostly continues to practice biodiversity-based agriculture (BBA) based on the management of plant diversity not only within plots but also more widely in the landscapes in which they are integrated. This type of agriculture is a promising alternative for the sustainable development of rural areas, but requires appropriate forms of support. Agroecological knowledge is especially a pivotal input of BBA. Promoting farmers' access to operational knowledge on how to manage plant diversity is thus a key lever to foster an agricultural transition based on BBA. Local networks for the circulation of agroecological knowledge play a major role in learning, involving both individuals and organizations and being largely conditioned by pre-existing social relations. Although some studies have highlighted the importance of these networks for BBA, their role remains largely unknown and is not taken into account in agricultural development initiatives. We propose an approach to characterize these local networks of knowledge circulation and their effect on farmers' plant diversity management practices, from plot to landscape. We also propose ways to strengthen and expand these networks by promoting knowledge sharing not only at the local level between farmers, but also with other types of actors carrying scientific and technical knowledge, using participatory modeling.

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\*Speaker